

SOUTH DAKOTA MATHEMATICS STANDARDS

6-8

Sixth Grade Algebra

Grade Standards, Supporting Skills, and Examples

Indicator 1: Use procedures to transform algebraic expressions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>6.A.1.1. Students are able to use order of operations, excluding nested parentheses and exponents, to simplify whole number expressions.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) $7 + 4 \bullet 3 - 5$ 2) $2(3 + 5) + 7(\frac{10}{2})$ 3) Ms. Smith's class is going to the movies. Tickets cost \$3 for children and \$5 for adults. Write and simplify the expression that shows the cost for 20 children and 4 adults. |
| (Application) | <p>6.A.1.2. Students are able to write algebraic expressions involving addition or multiplication using whole numbers.</p> <ul style="list-style-type: none"> • Show multiplication in various forms: $2 \bullet 3$ or $2n$ or $2(3)$. <p>Example:</p> <ol style="list-style-type: none"> 1) A number increased by 6 2) Twice a number |

Indicator 2: Use a variety of algebraic concepts and methods to solve equations and inequalities.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|--|
| (Application) | <p>6.A.2.1. Students are able to write and solve one-step 1st degree equations, with one variable, involving inverse operations using the set of whole numbers.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) Choose the correct answer to solve this equation using inverse operations, $x + 3 = 7$ <ol style="list-style-type: none"> a) $x + 3 = 7 - 3$ b) $x + 3 - 3 = 7 - 3$ c) $x + 3 - 3 = 7 - 7$ d) $x + 3 - 3 = 7 + 3$ 2) Write an equation for this statement and find the solution: Four times a number is eight. |

Indicator 3: Interpret and develop mathematical models.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
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| (Knowledge) | 6.A.3.1. Students are able to identify and graph ordered pairs in Quadrant I on a coordinate plane. |
| (Application) | <p>6.A.3.2. Students are able to solve one-step problems involving ratios and rates.</p> <p>Example: 15 ounces costs \$0.75. What does it cost for one ounce?</p> |

Indicator 4: Describe and use properties and behaviors of relations, functions, and inverses.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|--|
| (Comprehension) | <p>6.A.4.1. Students are able to use concrete materials, graphs and algebraic statements to represent problem situations.</p> <ul style="list-style-type: none"> Recognize, describe, and extend arithmetic sequences and patterns. Example: Mary has one carnation. Every day she gets 3 more carnations. On the fifth day how many carnations does Mary have? Use variables to represent given quantities in problem situations. Example: A beetle has six legs. How many legs are on n beetles? |

**Sixth Grade Algebra
Performance Descriptors**

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|-------------------|---|
| Advanced | <p>Sixth grade students performing at the advanced level:</p> <ul style="list-style-type: none"> write and simplify 1st degree algebraic expressions, and solve 1st degree algebraic equations, using the set of whole numbers, and justify solution(s); apply unit rates. |
| Proficient | <p>Sixth grade students performing at the proficient level:</p> <ul style="list-style-type: none"> write and simplify 1st degree algebraic expressions, and solve 1st degree algebraic equations, using the set of whole numbers; find unit rate; identify and graph ordered pairs in Quadrant I on a coordinate plane. |
| Basic | <p>Sixth grade students performing at the basic level:</p> <ul style="list-style-type: none"> simplify 1st degree algebraic expressions, and solve 1st degree equations, using the set of whole numbers. |

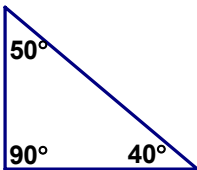
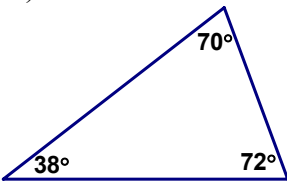
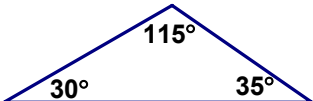

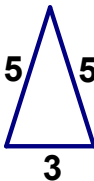
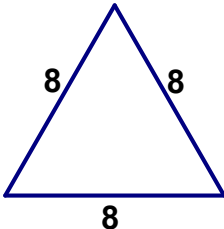
**Sixth Grade Algebra
ELL Performance Descriptors**




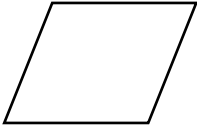
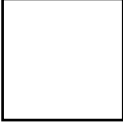
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| Proficient | <p>Sixth grade ELL students performing at the proficient level:</p> <ul style="list-style-type: none"> evaluate numerical expressions using the order of operations; write algebraic expressions; solve one-step algebraic equations with a replacement set; graph ordered pairs in Quadrant I; read, write, and speak the basic language of algebra. |
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| Intermediate | Sixth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • evaluate numerical expressions given the order of operations; • simplify algebraic expressions with a given value; • create numerical expressions from oral or written contexts; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral responses to directed questions on topics presented in class. |
| Basic | Sixth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • add, subtract, multiply, and divide whole numbers; • recognize and use basic algebraic terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Sixth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • solve numerical (not word) problems using addition, subtraction, multiplication, and division; • copy and write numerals and algebraic symbols; • imitate pronunciation of numbers and mathematical terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Sixth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Sixth Grade Geometry
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use deductive and inductive reasoning to recognize and apply properties of geometric figures.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|---|
| (Comprehension) | <p>6.G.1.1. Students are able to identify and describe the characteristics of triangles and quadrilaterals.</p> <ul style="list-style-type: none"> Identify and describe similarities and differences of triangles: Scalene Isosceles Equilateral Right Acute Obtuse <p>Example: Classify each triangle by its angles.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>1)</p>  </div> <div style="text-align: center;"> <p>2)</p>  </div> <div style="text-align: center;"> <p>3)</p>  </div> </div> <p>Example: Classify each triangle by its side lengths.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>1)</p>  </div> <div style="text-align: center;"> <p>2)</p>  </div> <div style="text-align: center;"> <p>3)</p>  </div> </div> <ul style="list-style-type: none"> Identify and describe similarities and differences of quadrilaterals: Trapezoid Parallelogram Rectangle Rhombus Square <p style="text-align: right;">(Example next page)</p> |

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|-----------------|--|
| | <p>Example: Classify each quadrilateral</p> <p>1)  2) </p> <p>3)  4)  5) </p> |
| (Comprehension) | <p>6.G.1.2. Students are able to identify and describe angles.</p> <ul style="list-style-type: none"> Identify and describe differences of angles: Acute Obtuse Right <p>Example: What is the difference between an acute angle and an obtuse angle?</p> |

Indicator 2: Use properties of geometric figures to solve problems from a variety of perspectives.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>6.G.2.1. Students are able to use basic shapes to demonstrate geometric concepts.</p> <ul style="list-style-type: none"> Demonstrate lines of symmetry. Use basic shapes to demonstrate congruency (triangle, rectangle, square, parallelogram). Use basic shapes to demonstrate similarity (triangle, rectangle, square, parallelogram). Use basic shapes to demonstrate perpendicular lines (triangle, rectangle, square, trapezoid). Use basic shapes to demonstrate parallel lines (rectangles, squares, parallelograms). Identify a reflection. |

**Sixth Grade Geometry
Performance Descriptors**

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| Advanced | Sixth grade students performing at the advanced level: <ul style="list-style-type: none"> develop and apply a variety of strategies and properties to analyze two-dimensional geometric figures. |
| Proficient | Sixth grade students performing at the proficient level: <ul style="list-style-type: none"> use geometric concepts to identify and describe characteristics of lines, angles, triangles, and quadrilaterals. |
| Basic | Sixth grade students performing at the basic level: <ul style="list-style-type: none"> identify characteristics of lines, angles, triangles, and quadrilaterals. |

**Sixth Grade Geometry
ELL Performance Descriptors**

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| Proficient | Sixth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> use geometric concepts to identify and describe characteristics of angles, triangles, and quadrilaterals; read, write, and speak the basic language of geometry. |
| Intermediate | Sixth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> identify and verbally describe angles, triangles, and quadrilaterals; write responses with oral support; explain in geometric terms the sequence of steps used in solving problems; give simple oral responses to directed questions on topics presented in class. |
| Basic | Sixth grade ELL students performing at the basic level: <ul style="list-style-type: none"> identify angles, triangles, squares, rectangles, and parallelograms; give limited written responses, which may include simple sentences, to directed questions on topics presented in class; recognize and use basic geometric terms; respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Sixth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> produce correct mathematical symbols and words in written and oral formats; recognize symbolically and pictorially represented mathematical concepts; copy and write geometric shapes and symbols; imitate pronunciation of geometric terms; use non-verbal communication to express mathematical ideas such as recognizing simple geometric figures. |

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| Pre-emergent | Sixth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |
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**Sixth Grade Measurement
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Apply measurement concepts in practical applications.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|--|
| (Comprehension) | <p>6.M.1.1. Students are able to select, use, and convert appropriate unit of measurement for a situation.</p> <ul style="list-style-type: none"> Determine elapsed time. Example: Alfredo went to the park at 11:15 a.m. and came home at 2:00 p.m. How long was he at the park? Convert length, capacity, and mass within the Metric system (kilo-, base unit, centi-, milli-). Convert weight and length within U.S. Customary system. ✓ <i>Convert capacity within U.S. Customary system (fluid ounce, cup, pint, quart, gallon).</i> ✓ <i>Measure angles.</i> |
| (Comprehension) | <p>6.M.1.2. Students are able to find the perimeter and area of squares and rectangles (whole number measurements).</p> <ul style="list-style-type: none"> Apply strategies and/or formulas. Use appropriate unit of measure. |

**Sixth Grade Measurement
Performance Descriptors**

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| Advanced | <p>Sixth students performing at the advanced level:</p> <ul style="list-style-type: none"> convert units of measure; use perimeter and area formulas to solve problems. |
| Proficient | <p>Sixth grade students performing at the proficient level:</p> <ul style="list-style-type: none"> convert basic units of measure; select and use the appropriate formula to find the perimeter and area of selected polygons. |
| Basic | <p>Sixth grade students performing at the basic level:</p> <ul style="list-style-type: none"> convert units of weight and length (inches, feet, and yards) in the U.S. Customary system; given the formula find the perimeter and area of selected polygons. |

**Sixth Grade Measurement
ELL Performance Descriptors**

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| Proficient | Sixth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • use measurement tools and techniques to measure in a variety of situations; • convert within systems of measurement for a variety of situations; • read, write, and speak the basic language of measurement. |
| Intermediate | Sixth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • measure in a variety of situations using correct tools; • use appropriate measurement units to solve problems; • use measurement terms to explain how to solve problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Sixth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • select and use appropriate measurement tools for a variety of situations; • recognize and use basic measurement terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Sixth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • recognize and name measurement tools; • copy and write measurement symbols; • imitate pronunciation of numbers and measurement terms; • use non-verbal communication to express measurement ideas. |
| Pre-emergent | Sixth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

**Sixth Grade Number Sense
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems. Analyze the concept of value, magnitude, and relative magnitude of real numbers.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|---|
| (Comprehension) | <p>6.N.1.1. Students are able to represent fractions in equivalent forms and convert between fractions, decimals, and percents using halves, fourths, tenths, hundredths.</p> <p>Examples:</p> <p>1) Write $\frac{1}{2}$ as a decimal and a percent.</p> <p>2) In the following equation, what value of x would make the relationship true? $\frac{1}{2} = \frac{x}{8}$</p> <p>3) Choose the number that represents $\frac{1}{4}$:</p> <p>a) 0.4 b) 1.4 c) 0.14 d) 0.25 e) 2.5</p> <ul style="list-style-type: none"> Identify both standard and word forms (millions to ten-thousandths) of positive rational numbers. ✓ <i>Identify, represent, compare, and order rational numbers and represent them on a number line.</i> ✓ <i>Describe and compare two numbers using ratios including appropriate notation, e.g., $a:b$, $\frac{a}{b}$, a to b.</i> |
| (Knowledge) | <p>6.N.1.2. Students are able to find factors and multiples of whole numbers.</p> <p>Examples: The area of a rectangle is 24 square units. What are the possible whole number dimensions?</p> <ul style="list-style-type: none"> Classify numbers as prime or composite. |

Indicator 2: Apply number operations with real numbers and other number systems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | 6.N.2.1. Students are able to add, subtract, multiply, and divide decimals. \surd <i>Operations with fractions and integers.</i> |

Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | 6.N.3.1. Students are able to use various strategies to solve one- and two-step problems involving positive decimals. <ul style="list-style-type: none"> Formulate rules to solve practical problems (problem solving). Use estimation strategies to make predictions and test the reasonableness of answer. Explain strategies and justify answers. <p>Example: Tom bought one pair of jeans for \$19.95 and 2 shirts for \$14.99 each. He gave the clerk \$60.00. What is his change? Explain the strategy and justify the answer.</p> |

Sixth Grade Number Sense Performance Descriptors

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|-------------------|---|
| Advanced | Sixth grade students performing at the advanced level: <ul style="list-style-type: none"> justify problem-solving strategies used in two-step situations with decimals; apply problem-solving strategies using factors and multiples with the set of whole numbers. |
| Proficient | Sixth grade students performing at the proficient level: <ul style="list-style-type: none"> read, represent, estimate, and calculate decimals; apply problem-solving strategies in one- and two-step situations with decimals; represent numbers in a variety of forms; find factors and multiples using the set of whole numbers. |

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| Basic | Sixth grade students performing at the basic level: <ul style="list-style-type: none"> • read, represent, estimate, and calculate whole numbers; • apply problem-solving strategies in one-step situations using the set of whole numbers; • find multiples using the set of whole numbers. |
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**Sixth Grade Number Sense
ELL Performance Descriptors**

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| Proficient | Sixth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • read, represent, estimate, and calculate whole numbers and positive fractions; • apply problem-solving strategies in contextual situations; • read, write, and speak the basic language of mathematics. |
| Intermediate | Sixth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • read, represent, estimate, and calculate whole numbers; • apply number operations to solve problems in contextual situations; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Sixth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • apply number operations to solve problems involving whole numbers; • recognize and use basic mathematical terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Sixth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • solve numerical (not word) problems using addition, subtraction, multiplication, and division; • copy and write numerical symbols; • imitate pronunciation of numbers and mathematical terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Sixth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Sixth Grade Statistics & Probability
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use statistical models to gather, analyze, and display data to draw conclusions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples | | | | | | | | | | | | | | | | | | |
|------------------------|--|------|------------------------|-----|----|-----|----|------|----|------|----|--------|----|-----|----|-----|----|-----|----|
| (Comprehension) | <p>6.S.1.1. Students are able to find the mean, mode, and range of an ordered set of positive data.</p> <p>Example: Find the mean, mode, and range of the following test scores: 72, 76, 82, 82, 87, 90, 92</p> <p>√ Find the median.</p> | | | | | | | | | | | | | | | | | | |
| (Application) | <p>6.S.1.2. Students are able to display data using bar and line graphs and draw conclusions from data displayed in a graph.</p> <p>Example: The sixth grade science class recorded the outside temperature each hour. Using the graph, answer the following questions:</p> <ol style="list-style-type: none"> 1) Between what two times did the temperature increase the most? 2) Estimate the temperature at 9:30 am. <div data-bbox="636 1121 1323 1644"> <table border="1"> <caption>Temperature on May 10</caption> <thead> <tr> <th>Time</th> <th>Fahrenheit Temperature</th> </tr> </thead> <tbody> <tr> <td>8am</td> <td>20</td> </tr> <tr> <td>9am</td> <td>30</td> </tr> <tr> <td>10am</td> <td>40</td> </tr> <tr> <td>11am</td> <td>50</td> </tr> <tr> <td>12noon</td> <td>60</td> </tr> <tr> <td>1pm</td> <td>75</td> </tr> <tr> <td>2pm</td> <td>75</td> </tr> <tr> <td>3pm</td> <td>70</td> </tr> </tbody> </table> </div> | Time | Fahrenheit Temperature | 8am | 20 | 9am | 30 | 10am | 40 | 11am | 50 | 12noon | 60 | 1pm | 75 | 2pm | 75 | 3pm | 70 |
| Time | Fahrenheit Temperature | | | | | | | | | | | | | | | | | | |
| 8am | 20 | | | | | | | | | | | | | | | | | | |
| 9am | 30 | | | | | | | | | | | | | | | | | | |
| 10am | 40 | | | | | | | | | | | | | | | | | | |
| 11am | 50 | | | | | | | | | | | | | | | | | | |
| 12noon | 60 | | | | | | | | | | | | | | | | | | |
| 1pm | 75 | | | | | | | | | | | | | | | | | | |
| 2pm | 75 | | | | | | | | | | | | | | | | | | |
| 3pm | 70 | | | | | | | | | | | | | | | | | | |

Indicator 2: Apply the concepts of probability to predict events/outcomes and solve problems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|--|
| (Knowledge) | 6.S.2.1. Students are able to find the probability of a simple event. <ul style="list-style-type: none"> Express the result as a fraction. Example: What is the probability that the number is greater than four on a number cube labeled one through six. |

**Sixth Grade Statistics & Probability
Performance Descriptors**

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| Advanced | Sixth grade students performing at the advanced level: <ul style="list-style-type: none"> represent data in bar and line graphs and draw conclusions from those graphs; make predictions from a given graph; find measures of central tendency from a set of data; find the probability of a simple event. |
| Proficient | Sixth grade students performing at the proficient level: <ul style="list-style-type: none"> represent data in bar and line graphs and draw conclusions from a given graph; find mean, mode, and range of an ordered set of data; find the probability of a simple event given pictorial representation. |
| Basic | Sixth grade students performing at the basic level: <ul style="list-style-type: none"> draw bar and line graphs given appropriate scales; find mode and range of an ordered set of data; find the possible outcomes of a simple event given pictorial representation. |

**Sixth Grade Statistics & Probability
ELL Performance Descriptors**

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|-------------------|--|
| Proficient | Sixth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> represent data in line and bar graphs; find mean, mode, and range from an ordered data set; find the probability of simple events given pictorial representations; read, write, and speak the basic language of statistics and probability. |
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| Intermediate | Sixth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • draw line and bar graphs given the scales; • find mode and range from an ordered data set; • find possible outcomes of simple events given pictorial representations; • read and answer directed questions about data in basic graphs; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Sixth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • find probability of simple events using concrete materials; • recognize and use basic statistical and probability terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Sixth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • copy and write statistics and probability symbols and figures; • imitate pronunciation of statistical and probability terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Sixth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Seventh Grade Algebra
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use procedures to transform algebraic expressions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>7.A.1.1. Students are able to write and evaluate algebraic expressions using the set of whole numbers.</p> <p>Example: Write and evaluate the expression needed to solve the problem: Mary's hockey team won twice as many games as they lost. They lost 5 games. How many games did they win?</p> <ul style="list-style-type: none"> • Use replacement values for variables. Examples: 1) Evaluate $2x^2 + 7$ if $x = 4$ 2) Evaluate $\frac{8b}{a}$ if $a = 6$ and $b = 3$ • Use order of operations. Example: Evaluate $9a - (4b + 2c)$ if $a = 6$, $b = 3$, and $c = 7$ |
| (Knowledge) | <p>7.A.1.2. Students are able to identify associative, commutative, distributive, and identity properties involving algebraic expressions.</p> <p>Examples: Name the property shown by the statements in the problems below.</p> <ol style="list-style-type: none"> 1) $5s + 9 = 9 + 5s$ 2) $(7a)b = 7(ab)$ 3) $22 \cdot 1 = 22$ 4) $x + 0 = x$ 5) $5(a + b) = 5a + 5b$ <p>✓ <i>Use the associative, commutative, distributive, and identity properties.</i></p> |

Indicator 2: Use a variety of algebraic concepts and methods to solve equations and inequalities.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|---|
| (Application) | <p>7.A.2.1. Students are able to write and solve one-step 1st degree equations, with one variable, using the set of integers and inequalities, with one variable, using the set of whole numbers.</p> <p>Examples:</p> <p>1) Solve $-3x = 15$</p> <p>2) Solve $3x \geq 6$</p> <p>Examples: Write and solve</p> <p>1) Eight less than a number is -5.</p> <p>2) The sum of a number and 6 is greater than 12.</p> <ul style="list-style-type: none"> • Addition property of equality. • Multiplication property of equality. • Inverse operations. |

Indicator 3: Interpret and develop mathematical models.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>7.A.3.1. Students are able to identify and graph ordered pairs on a coordinate plane and inequalities on a number line.</p> <ul style="list-style-type: none"> • Quadrants I-IV • Use a scatterplot to draw an approximate line of best fit in a coordinate plane. |
| (Application) | <p>7.A.3.2. Students are able to model and solve multi-step problems involving rates.</p> <ul style="list-style-type: none"> • Better buy Example: Which represents the least expensive price per candy bar? a. 3 candy bars for \$ 1.00 b. 4 candy bars for \$ 1.50 c. 5 candy bars for \$ 2.00 d. 6 candy bars for \$ 2.50 • Unit rates Example: Tell which unit rate is greater: Fred rollerblades 4 miles in 32 minutes. Eden rollerblades 2 miles in 18 minutes. |

Indicator 4: Describe and use properties and behaviors of relations, functions, and inverses.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples | | | | | | | | | | | | | | | | | | | | |
|------------------------|--|----|----|---|---|---|---|---|----|----|---|---|---|---|---|---|---|---|---|---|---|
| (Application) | <p>7.A.4.1. Students are able to recognize one-step patterns using tables, graphs, and models and create one-step algebraic expressions representing the pattern.</p> <p>Example:</p> <p>1) Complete the table and write an algebraic expression for the given table.</p> <table><tr><td>X</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Y</td><td>7</td><td>14</td><td>21</td><td>?</td></tr></table> <p>Example:</p> <p>2) Complete the table and write an algebraic expression for the given table.</p> <table><tr><td>X</td><td>Y</td></tr><tr><td>1</td><td>5</td></tr><tr><td>2</td><td>6</td></tr><tr><td>3</td><td>7</td></tr><tr><td>4</td><td>?</td></tr></table> <ul style="list-style-type: none">• Identify arithmetic and geometric sequences.• Extend arithmetic and geometric sequences. <p>Example: Is this an arithmetic or geometric sequence or neither? Write the next three terms in the sequence.</p> <p>3, 7, 11, 15, __, __, __.</p> | X | 1 | 2 | 3 | 4 | Y | 7 | 14 | 21 | ? | X | Y | 1 | 5 | 2 | 6 | 3 | 7 | 4 | ? |
| X | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | |
| Y | 7 | 14 | 21 | ? | | | | | | | | | | | | | | | | | |
| X | Y | | | | | | | | | | | | | | | | | | | | |
| 1 | 5 | | | | | | | | | | | | | | | | | | | | |
| 2 | 6 | | | | | | | | | | | | | | | | | | | | |
| 3 | 7 | | | | | | | | | | | | | | | | | | | | |
| 4 | ? | | | | | | | | | | | | | | | | | | | | |

**Seventh Grade Algebra
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | <p>Seventh grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • simulate situations using 1st degree algebraic statements using the set of whole numbers, in order to justify solution(s); • model and solve multi-step problems involving rates and justify the reasoning; • write the inequality statement. |
| Proficient | <p>Seventh grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • write, simplify, and solve 1st degree algebraic statements using the set of whole numbers; • model and solve multi-step problems involving rates; • identify and graph ordered pairs on a coordinate plane and inequalities on a number line. |

| | |
|--------------|---|
| Basic | Seventh grade students performing at the basic level: <ul style="list-style-type: none"> • simplify and solve one-step 1st degree algebraic statements using the set of whole numbers; • find unit rates; • graph ordered pairs in Quadrant I on a coordinate plane. |
|--------------|---|

**Seventh Grade Algebra
ELL Performance Descriptors**

| | |
|---------------------|---|
| Proficient | Seventh grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • write and simplify algebraic expressions using whole numbers; • solve equations involving inverse operations using whole numbers; • read, write, and speak the language of algebra. |
| Intermediate | Seventh grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • simplify algebraic expressions using whole numbers; • solve equations using replacement sets; • create numerical expressions from oral or written contexts using addition and multiplication; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Seventh grade ELL students performing at the basic level: <ul style="list-style-type: none"> • simplify algebraic expressions using replacement values; • use a number line to solve problems that involve integers; • recognize and use basic algebraic terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Seventh grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • respond to numerical (not word) problems using addition, subtraction, multiplication, and division; • copy and write numerals and algebraic symbols; • imitate pronunciation of numbers and mathematical terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Seventh grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

**Seventh Grade Geometry
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Use deductive and inductive reasoning to recognize and apply properties of geometric figures.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|--|
| (Application) | <p>7.G.1.1. Students are able to identify, describe, and classify polygons having up to 10 sides.</p> <ul style="list-style-type: none"> • Relationships among triangles. Example: Can an equilateral triangle contain an obtuse angle? Why/why not? • Relationships among quadrilaterals. Example: Is a square a type of rectangle? • Sketch two-dimensional figures. |
| (Knowledge) | <p>7.G.1.2. Students are able to identify and describe elements of geometric figures.</p> <ul style="list-style-type: none"> • Altitude • Midpoint • Bisector • Radius • Diameter • Chord |

Indicator 2: Use properties of geometric figures to solve problems from a variety of perspectives.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|---|
| (Application) | <p>7.G.2.1. Students are able to demonstrate ways that shapes can be transformed.</p> <ul style="list-style-type: none"> • Translation • Rotation • Reflection <p>√ Tessellation</p> <p>√ Write and solve proportions that express the relationships between corresponding parts of similar quadrilaterals and triangles.</p> |

**Seventh Grade Geometry
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | <p>Seventh grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • analyze two-dimensional shapes using their properties and relationships; • predict the results of two-dimensional transformations. |
| Proficient | <p>Seventh grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • describe and classify two-dimensional shapes using their properties and relationships; • transform two-dimensional geometric figures. |
| Basic | <p>Seventh grade students performing at the basic level:</p> <ul style="list-style-type: none"> • identify properties and elements of basic two-dimensional shapes. |

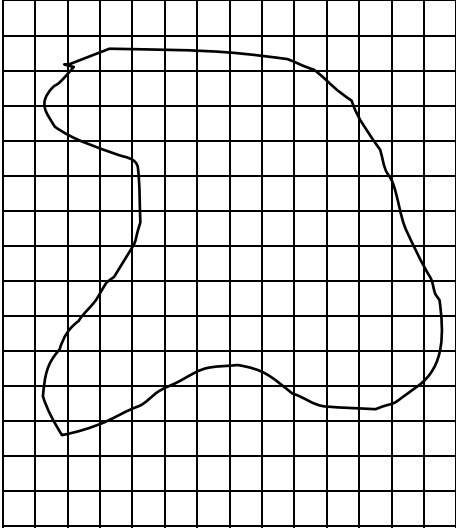
**Seventh Grade Geometry
ELL Performance Descriptors**

| | |
|-------------------|---|
| Proficient | <p>Seventh grade ELL students performing at the proficient level:</p> <ul style="list-style-type: none"> • describe and classify two-dimensional shapes using their properties and relationships; • transform geometric figures; • read, write, and speak the basic language of geometry. |
|-------------------|---|

| | |
|---------------------|---|
| Intermediate | Seventh grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • describe and classify two-dimensional shapes verbally; • respond to written problems with oral support; • write responses with oral support; • explain in geometric terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Seventh grade ELL students performing at the basic level: <ul style="list-style-type: none"> • identify simple two-dimensional shapes; • use given formulas to solve problems involving two-dimensional shapes; • recognize and use basic geometric terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Seventh grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • recognize symbolically and pictorially represented mathematical concepts; • copy and write geometric shapes and symbols; • imitate pronunciation of geometric terms; • use non-verbal communication to express mathematical ideas such as recognizing simple geometric figures. |
| Pre-emergent | Seventh grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

**Seventh Grade Measurement
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Apply measurement concepts in practical applications.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|---|
| (Comprehension) | <p>7.M.1.1. Students are able to select, use, and convert appropriate units of measurement for a situation including capacity and angle measurement.</p> <ul style="list-style-type: none"> • Measure angles $\leq 180^\circ$ to the nearest degree. • Measure length, capacity, and mass. • Convert within the Metric system (kilo- thru milli-). • Convert within the U.S. Customary system (weight, length, capacity). |
| (Comprehension) | <p>7.M.1.2. Students, when given the formulas, are able to find circumference, perimeter, and area of circles, parallelograms, triangles, and trapezoids (whole number measurements).</p> <ul style="list-style-type: none"> • Use appropriate unit of measure. • Estimate the area of irregular shapes. <p>Example: Use a grid to find the approximate area of the lake.</p>  |

**Seventh Grade Measurement
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | Seventh students performing at the advanced level: <ul style="list-style-type: none"> • use perimeter, circumference, and area formulas to solve problems; • select, use, and convert appropriate units of measure to solve problems; • draw and use grids to estimate the area of a shape. |
| Proficient | Seventh grade students performing at the proficient level: <ul style="list-style-type: none"> • select and use the appropriate formula to find the perimeter, circumference, and area of a shape; • select and use appropriate units of measure; • convert units of measure. |
| Basic | Seventh grade students performing at the basic level: <ul style="list-style-type: none"> • given the formula find the perimeter and area of a shape; • select appropriate units of measure. |

**Seventh Grade Measurement
ELL Performance Descriptors**

| | |
|---------------------|---|
| Proficient | Seventh grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • explain and use formulas in measurement situations; • create scale drawings; • solve problems accurately involving standard two-dimensional shapes; • read, write, and speak the basic language of measurement. |
| Intermediate | Seventh grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • use formulas in measurement situations; • use measurement terms to explain how to solve problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Seventh grade ELL students performing at the basic level: <ul style="list-style-type: none"> • select and use appropriate measurement tools for a variety of situations; • recognize and use basic measurement terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Seventh grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • recognize and name measurement tools; • give simple oral responses to directed questions on topics presented in class; • copy and write measurement symbols; • imitate pronunciation of numbers and measurement terms; • use non-verbal communication to express measurement ideas. |

| | |
|---------------------|--|
| Pre-emergent | Seventh grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |
|---------------------|--|

**Seventh Grade Number Sense
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems. Analyze the concept of value, magnitude, and relative magnitude of real numbers.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | <p>7.N.1.1. Students are able to represent numbers in a variety of forms by describing, ordering, and comparing integers, decimals, percents, and fractions.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) Arrange in order from least to greatest 2, $\frac{1}{2}$, 1.5, 75%. 2) Choose the number that is closest to $\frac{1}{4}$: a) 0.4 b) 1.4 c) 0.14 d) 0.3 e) 2.5 3) Suppose a recipe calls for $\frac{3}{4}$ c. sugar. Juanita has the following measuring cups: 1 cup, $\frac{1}{2}$ cup, $\frac{1}{3}$ cup, $\frac{1}{4}$ cup, $\frac{1}{8}$ cup, and a tablespoon ($\frac{1}{16}$ cup). Record different ways to measure $\frac{3}{4}$ cup. <ul style="list-style-type: none"> • Describe and compare numbers using ratios including appropriate notation, e.g., a:b, $\frac{a}{b}$, a to b. <p>✓ <i>Scientific notation, calculator notation.</i> ✓ <i>Include percents less than one and greater than 100.</i> ✓ <i>Identify, represent, compare, and order rational numbers and represent them on a number line.</i></p> |
| (Application) | <p>7.N.1.2. Students are able to find and use common multiples and factors of whole numbers.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) List the 1st five multiples of each of these numbers: 5, 8 and 2. <ul style="list-style-type: none"> • Least Common Multiple Example: 1) Find the Least Common Multiple of 2, 3 and 5. • Greatest Common Factor Example: Find the Greatest Common Factor of 6 and 42. |

| | |
|--|---|
| | <ul style="list-style-type: none"> Divisibility rules (2, 3, 4, 6, 9, 10). <p>Example:</p> <ol style="list-style-type: none"> Write a digit in the blank so that the entire number is divisible by 3. 5 <u> </u> 203 Will any other digits work? Explain your thinking. |
|--|---|

Indicator 2: Apply number operations with real numbers and other number systems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>7.N.2.1. Students are able to add, subtract, multiply, and divide integers and positive fractions.</p> <p>Examples:</p> <ol style="list-style-type: none"> Sue received \$100 from her mom for shopping. On a recent shopping trip to the mall she spent \$55 at the clothing store and \$28 at the jewelry store. What was her financial status at the end of the afternoon? Was it positive or negative? Use integers to solve. Suppose Cody jogged $\frac{3}{4}$ mile yesterday and $1\frac{1}{8}$ miles today. How much did he jog all together? How much farther did he jog today than yesterday? Emerick bought a $3\frac{1}{2}$ pound package of hamburger. How many $\frac{1}{2}$ pound burgers can you make? Explain the strategy used. |

Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|---|
| (Application) | <p>7.N.3.1. Students are able to use various strategies to solve one- and two-step problems involving positive fractions and integers.</p> <p>Example:</p> <p>Bill received \$200 for his birthday. He spent $\frac{1}{4}$ of it on new CDs. Does he have enough to buy a \$178.99 T.V. set? Explain.</p> <ul style="list-style-type: none"> • Formulate rules to solve practical problems involving integers (problem solving). • Use estimation strategies to make predictions and test the reasonableness of the answer. • Explain strategies and justify answers. |

**Seventh Grade Number Sense
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | <p>Seventh grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • justify problem-solving strategies used in multi-step situations with integers and positive fractions. |
| Proficient | <p>Seventh grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • read, represent, estimate, and calculate with integers and positive fractions; • find and use least common multiples and greatest common factors; • apply problem-solving strategies in one- and two-step situations with integers and positive fractions. |
| Basic | <p>Seventh grade students performing at the basic level:</p> <ul style="list-style-type: none"> • read, represent, estimate, and calculate decimals; • find common factors and multiples; • apply problem solving strategies in one- and two-step situations with decimals. |

**Seventh Number Sense
ELL Performance Descriptors**

| | |
|---------------------|--|
| Proficient | Seventh grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • read, represent, estimate, and calculate integers and positive fractions; • find factors and multiples; • read, write, and speak the basic language of mathematics. |
| Intermediate | Seventh grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • read, represent, estimate, and calculate decimals; • apply problem-solving strategies in contextual situations; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Seventh grade ELL students performing at the basic level: <ul style="list-style-type: none"> • use integers to solve one-step problems; • recognize and use basic mathematical terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Seventh grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • respond to problems using addition, subtraction, multiplication, and division; • copy and write numerical symbols; • imitate pronunciation of numbers and mathematical terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Seventh grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Seventh Grade Statistics & Probability
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use statistical models to gather, analyze, and display data to draw conclusions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|-------------------------|----|----|----|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|--|---|---|---|---|---|---|---|--|---|--|---|---|--|--|--|--|--|--|---|--|---|--|--|--|--|--|--|--|
| (Comprehension) | <p>7.S.1.1. Students are able to find the mean, median, mode, and range of a set of data.</p> <p>Example: Find the mean, median, mode, and range of the following set of data.</p> <table><tr><th colspan="7">Daily High Temperatures</th></tr><tr><th>S</th><th>M</th><th>T</th><th>W</th><th>T</th><th>F</th><th>S</th></tr><tr><td>62</td><td>58</td><td>55</td><td>65</td><td>62</td><td>67</td><td>72</td></tr></table> | Daily High Temperatures | | | | | | | S | M | T | W | T | F | S | 62 | 58 | 55 | 65 | 62 | 67 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Daily High Temperatures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | M | T | W | T | F | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 62 | 58 | 55 | 65 | 62 | 67 | 72 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (Application) | <p>7.S.1.2. Students are able to display data, using frequency tables, line plots, stem-and-leaf plots, and make predictions from data displayed in a graph.</p> <p>Example: If Tanja had a typical game, how many points could she expect to score? Explain your reasoning.</p> <p style="text-align: center;">Tanja's Points Scored Per Basketball Game</p> <table><tr><td>0</td><td> </td><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td> </td><td>0</td><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td> </td><td>1</td><td>1</td><td>2</td><td>5</td><td>5</td><td>5</td><td>8</td><td></td></tr><tr><td>3</td><td> </td><td>2</td><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td> </td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> | 0 | | 7 | | | | | | | | 1 | | 0 | 8 | | | | | | | 2 | | 1 | 1 | 2 | 5 | 5 | 5 | 8 | | 3 | | 2 | 3 | | | | | | | 4 | | 0 | | | | | | | |
| 0 | | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | 0 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | 1 | 1 | 2 | 5 | 5 | 5 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Indicator 2: Apply the concepts of probability to predict events/outcomes and solve problems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|---|
| (Comprehension) | <p>7.S.2.1. Students are able, given a sample space, to find the probability of a specific outcome.</p> <ul style="list-style-type: none"> • Simple probability. Example: In a bag with 5 blue, 7 red, and 3 green marbles, what is the probability of not getting a blue marble? • Express probability as a ratio, decimal, or percent. |

**Seventh Grade Statistics & Probability
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | <p>Seventh grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • organize and represent data in various forms and use results to make predictions; • find measures of central tendency; • make predictions using theoretical probability of an independent event. |
| Proficient | <p>Seventh grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • organize and represent data in various forms and make predictions from given graphs; • find measures of central tendency given a set of data; • find the probability of a simple event. |
| Basic | <p>Seventh grade students performing at the basic level:</p> <ul style="list-style-type: none"> • represent data in various forms; • find mean, mode, and range of a given set of data; • find the probability of a simple event given pictorial representation. |

**Seventh Grade Statistics & Probability
ELL Performance Descriptors**

| | |
|---------------------|---|
| Proficient | Seventh grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • gather, organize, and display data in graphs to solve problems; • find measures of central tendency of a given data set; • find probability of a simple event; • read, write, and speak the basic language of statistics and probability. |
| Intermediate | Seventh grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • represent data in various forms; • find mean, mode, and range of a given data set; • find the probability of simple events given pictorial representations; • read and answer directed questions about data in graphs; • explain in mathematical terms the sequence of steps used in solving problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Seventh grade ELL students performing at the basic level: <ul style="list-style-type: none"> • find the probability of simple events given pictorial representations or concrete materials; • recognize and use basic statistics and probability terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Seventh grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • copy and write statistics and probability symbols and figures; • imitate pronunciation of statistics and probability terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Seventh grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Eighth Grade Algebra
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use procedures to transform algebraic expressions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|---|
| (Application) | <p>8.A.1.1. Students are able to use properties to expand, combine, and simplify 1st degree algebraic expressions with the set of integers.</p> <ul style="list-style-type: none"> • Properties include associative, commutative, distributive, and identity properties. • Use order of operations with exponents and nested parentheses. <p>Examples: Simplify the following expressions:</p> <p>1) $3(-2z + x)$</p> <p>2) $3 + 2(5x - (-2x))$</p> <p>3) $\frac{8x}{2}$</p> <ul style="list-style-type: none"> • Determine if two 1st degree algebraic expressions are equivalent. <p>Example:</p> <p>Is $3(x + 2)$ equivalent to $\frac{9x}{3} + 6$?</p> |

Indicator 2: Use a variety of algebraic concepts and methods to solve equations and inequalities.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|---|
| (Application) | <p>8.A.2.1. Students are able to write and solve two-step 1st degree equations, with one variable, and one-step inequalities, with one variable, using the set of integers.</p> <p>Examples: Solve</p> <p>1) $\frac{x}{2} - (-2) = -5$</p> <p>2) $x - (-5) \leq 7$</p> |

| | |
|--|---|
| | <p>Examples: Write and solve</p> <ol style="list-style-type: none"> 1) Five less than four times a number is thirteen. 2) A number divided by negative seven is less than or equal to fourteen. <ul style="list-style-type: none"> • Inverse operations • Addition property of equality. • Multiplication property of equality. |
|--|---|

Indicator 3: Interpret and develop mathematical models.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | <p>8.A.3.1. Students are able to describe and determine linear relationships.</p> <ul style="list-style-type: none"> • Determine slope from a line or ordered pairs on a graph. • Identify x and y intercepts from a graph. |

Indicator 4: Describe and use properties and behaviors of relations, functions, and inverses.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Synthesis) | <p>8.A.4.1. Students are able to create rules to explain the relationship between numbers when a change in the first variable affects the second variable.</p> <p>Example:</p> <ol style="list-style-type: none"> 1) $x + y = 10$. As x increases what happens to y? 2) In the equation $y = 6x$, what is the effect on the value of y if the value of x is doubled? |
| (Analysis) | <p>8.A.4.2. Students are able to describe and represent relations using tables, graphs, and rules.</p> <ul style="list-style-type: none"> • Represent situations with patterns and relations to find exact or approximate solutions to problems. • Make predictions relating two variables using a rule or a graph. |

**Eighth Grade Algebra
Performance Descriptors**


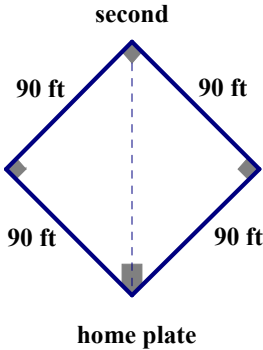
| | |
|-------------------|---|
| Advanced | Eighth grade students performing at the advanced level: <ul style="list-style-type: none"> represent using 1st degree algebraic statements using integers, tables, and graphs, in order to justify solution(s). |
| Proficient | Eighth grade students performing at the proficient level: <ul style="list-style-type: none"> simulate situations using 1st degree algebraic statements using integers, tables, and graphs in order to determine solution(s). |
| Basic | Eighth grade students performing at the basic level: <ul style="list-style-type: none"> simplify, solve, and graph 1st degree algebraic statements using whole numbers. |

**Eighth Grade Algebra
ELL Performance Descriptors**

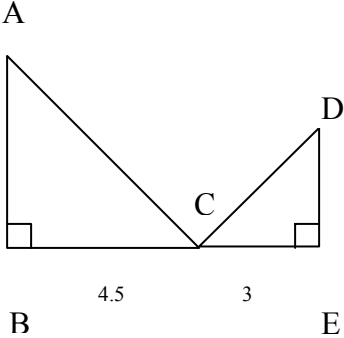
| | |
|---------------------|--|
| Proficient | Eighth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> solve algebraic equations involving rational numbers; use tables and graphs to justify solutions; read, write, and speak the basic language of algebra. |
| Intermediate | Eighth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> solve algebraic equations involving integers; use tables and graphs to determine solutions verbally or in writing; create numerical expressions from oral or written contexts; explain in mathematical terms the sequence of steps used in solving problems; given simple oral or written responses to directed questions on topics presented in class. |
| Basic | Eighth grade ELL students performing at the basic level: <ul style="list-style-type: none"> evaluate numerical expressions using integers; read tables and graphs; recognize and use basic algebraic terms; respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Eighth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> respond to numerical (not word) problems using addition, subtraction, multiplication, and division; use a number line to solve simple problems involving integers; copy and write numerals and algebraic symbols; imitate pronunciation of numbers and mathematical terms; use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Eighth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> observe and model appropriate cultural and learning behaviors from peers and adults; listen to and observe comprehensible instruction and communicate understanding non-verbally. |

Eighth Grade Geometry
Grade Standards, Supporting Skills, and Examples

Indicator 1: Use deductive and inductive reasoning to recognize and apply properties of geometric figures.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>8.G.1.1. Students are able to describe and classify prisms, pyramids, cylinders, and cone.</p> <p>Example: Classify the solid. How many edges does it have? How many vertices? How many faces does it have?</p>  <ul style="list-style-type: none"> • Faces, edges, and vertices. <p>✓ <i>Nets.</i></p> |
| (Application) | <p>8.G.1.2. Students, when given any two sides of an illustrated right triangle, are able to use the Pythagorean Theorem to find the third side.</p> <p>Example: A baseball diamond is a square. How far does the catcher have to throw when he throws the ball to second?</p>  <ul style="list-style-type: none"> • Given the formula. • Using whole numbers for the known values. |

Indicator 2: Use properties of geometric figures to solve problems from a variety of perspectives.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>8.G.2.1. Students are able to write and solve proportions that express the relationships between corresponding parts of similar quadrilaterals and triangles.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) A rectangle has a width of 5 cm and a length of 7 cm. A similar rectangle is 12 cm in width. What is the length of the rectangle? 2) Given $\triangle ABC \sim \triangle DEC$, find the length of side AB. <div style="text-align: center;">  <p>The diagram shows two right triangles, $\triangle ABC$ and $\triangle DEC$, positioned such that they share a common vertex C. Triangle ABC is on the left with its right angle at vertex B. Triangle DEC is on the right with its right angle at vertex E. The segments BC and CE are collinear and labeled with lengths 4.5 and 3 respectively. The vertices are labeled A (top left), B (bottom left), C (middle), D (top right), and E (bottom right).</p> </div> <ol style="list-style-type: none"> 3) A frame of a movie film is 35 mm wide and 26.25 mm high. The film projects an image 8 m wide on a movie screen. How high is the image? |

Eighth Grade Geometry Performance Descriptors

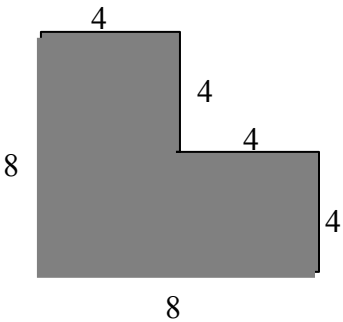
| | |
|-------------------|--|
| Advanced | <p>Eighth grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • sketch, and analyze characteristics of three-dimensional shapes applying properties and relationships; • sketch and analyze characteristics of two-dimensional shapes applying properties and proportional relationships. |
| Proficient | <p>Eighth grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • compare characteristics of three-dimensional shapes using given formulas, properties, and relationships; • compare two-dimensional shapes using given formulas, properties, and proportional relationships. |
| Basic | <p>Eighth grade students performing at the basic level:</p> <ul style="list-style-type: none"> • identify and compare characteristics of basic two- and three-dimensional shapes given specific formulas, properties, and proportional relationships. |

**Eighth Grade Geometry
ELL Performance Descriptors**

| | |
|---------------------|---|
| Proficient | Eighth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • sketch, transform, and compare characteristics of two-dimensional shapes using given formulas, properties, and relationships; • sketch and compare characteristics of three-dimensional shapes using given formulas, properties, and relationships; • read, write, and speak the basic language of geometry. |
| Intermediate | Eighth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • identify and compare verbally characteristics of simple two- and three-dimensional shapes given specific formulas, properties, and relationships; • write responses with oral support; • explain in geometric terms the sequence of steps used in solving problems; • give simple oral responses to directed questions on topics presented in class. |
| Basic | Eighth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • identify simple two- and three-dimensional shapes; • use given formulas to calculate area and perimeter of two-dimensional shapes; • give limited written responses, which may include simple sentences, to directed questions on topics presented in class; • recognize and use basic geometric terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Eighth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • identify basic geometric figures; • copy and write geometric shapes and symbols; • imitate pronunciation of geometric shapes and terms; • use non-verbal communication to express mathematical ideas. |
| Pre-emergent | Eighth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |

**Eighth Grade Measurement
Grade Standards, Supporting Skills, and Examples**

Indicator 1: Apply measurement concepts in practical applications.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|-------------------------------|---|
| (Application) | <p>8.M.1.1. Students are able to apply proportional reasoning to solve measurement problems with rational number measurements.</p> <ul style="list-style-type: none"> • Conversion within measurement systems. • Use scale drawings to represent situations. • Indirect measurement. <p>Examples:</p> <ol style="list-style-type: none"> 1) One of the models of King Kong was 18 inches tall. How tall was King Kong in the movie if the scale is 3 in. = 4 ft.? 2) A lake front building that is 26 ft. high casts a shadow on the water. How long is the shadow if a 10 ft. high truck parked nearby casts a 7 ft. shadow? |
| (Comprehension) | <p>8.M.1.2. Students are able to find area, volume, and surface area with whole number measurements.</p> <ul style="list-style-type: none"> • Use appropriate unit of measure • Apply strategies and/or formulas. • Volume of rectangular prisms, rectangular pyramids, cylinders, and cones. • Surface area of rectangular prisms and cylinders. • Area of composite shapes. <p>Example: Find the area of the figure.</p>  |

**Eighth Grade Measurement
Performance Descriptors**

| | |
|-------------------|--|
| Advanced | Eighth students performing at the advanced level: <ul style="list-style-type: none"> • solve measurement problems without pictorial representation; • apply formulas for volume and surface area to solve problems; • write appropriate formulas to find the area of composite shapes. |
| Proficient | Eighth grade students performing at the proficient level: <ul style="list-style-type: none"> • solve measurement problems given pictorial representation; • select and use formulas to find volume and surface area; • find area of composite shapes. |
| Basic | Eighth grade students performing at the basic level: <ul style="list-style-type: none"> • convert units within a measurement system; • find area and volume given the formula. |

**Eighth Grade Measurement
ELL Performance Descriptors**

| | |
|---------------------|--|
| Proficient | Eighth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> • apply proportional reasoning to solve measurement problems; • find volume and surface area; • convert within and between systems of measurement for a variety of situations; • read, write, and speak the basic language of measurement. |
| Intermediate | Eighth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> • measure accurately in a variety of situations; • convert within systems of measurement for a variety of situations; • use measurement terms to explain how to solve problems; • give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Eighth grade ELL students performing at the basic level: <ul style="list-style-type: none"> • select and use appropriate measurement tools for a variety of situations; • recognize and use basic measurement terms; • respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Eighth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> • copy and write mathematical symbols; • recognize symbolically and pictorially represented mathematical concepts; • copy and write measurement symbols; • imitate pronunciation of measurement terms; • use non-verbal communication to express mathematical ideas such as recognizing simple geometric figures. |

| | |
|---------------------|---|
| Pre-emergent | Eighth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |
|---------------------|---|

Eighth Grade Number Sense
Grade Standards, Supporting Skills, and Examples

Indicator 1: Analyze the structural characteristics of the real number system and its various subsystems. Analyze the concept of value, magnitude, and relative magnitude of real numbers.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | <p>8.N.1.1. Students are able to represent numbers in a variety of forms and identify the subsets of rational numbers.</p> <ul style="list-style-type: none"> • Exponents • Scientific notation • Absolute value • Radicals (perfect squares) • Graph on a number line <p>Example: Choose four numbers between two and three and place them on a number line.</p> <p>√ <i>Explain the effects of operations on the magnitude of rational numbers.</i> Example: Use an area model to show that multiplying 5 by a number >1 results in an answer >5, but multiplying 5 by a number <1 results in an answer <5.</p> <p>√ <i>Multiplication and division of an inequality by a negative number.</i></p> |

Indicator 2: Apply number operations with real numbers and other number systems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>8.N.2.1. Students are able to read, write, and compute within any subset of rational numbers.</p> <ul style="list-style-type: none"> Solve problems involving discount, markup, commission, profit, and simple interest. <p>Example: The school store buys notebooks for \$.30. They sell them for \$.50. What is the percent of markup on each notebook? If they sell 170 notebooks, what is their profit?</p> |

Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Application) | <p>8.N.3.1. Students are able to use various strategies to solve multi-step problems involving rational numbers.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) A soccer team won 48 of its first 80 games. How many of its next 50 games must the team win in order to maintain the ratio of wins to losses? 2) A certain rectangle has whole number dimensions in inches and the ratio of its length to width is 4 to 3. Its area is 300 square inches. What is the length and width of the rectangle? <ul style="list-style-type: none"> Explain strategies and justify answers. Formulate rules to solve practical problems involving rational numbers. Use estimation strategies to make predictions and test the reasonableness of the answer. <p>Example: Estimate $\sqrt{20}$</p> <p>✓ <i>Formulate counter-examples to disclaim given assertions.</i></p> |

**Eighth Grade Number Sense
Performance Descriptors**

| | |
|-------------------|---|
| Advanced | Eighth grade students performing at the advanced level: <ul style="list-style-type: none"> justify problem-solving strategies used in multi-step situations within the set of rational numbers. |
| Proficient | Eighth grade students performing at the proficient level: <ul style="list-style-type: none"> read, represent, estimate, and calculate using the set of rational numbers; apply problem-solving strategies in multi-step situations using the set of rational numbers. |
| Basic | Eighth grade students performing at the basic level: <ul style="list-style-type: none"> read, represent, estimate, and calculate integers and positive fractions; apply problem-solving strategies in one- and two-step situations with integers and positive fractions. |

**Eighth Number Sense
ELL Performance Descriptors**

| | |
|---------------------|--|
| Proficient | Eighth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> read, represent, estimate, and calculate rational numbers; apply problem-solving strategies in contextual situations; read, write, and speak the basic language of mathematics. |
| Intermediate | Eighth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> read, represent, estimate, and calculate integers and positive fractions; apply problem-solving strategies in contextual situations; explain in mathematical terms the sequence of steps used in solving problems; give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Eighth grade ELL students performing at the basic level: <ul style="list-style-type: none"> perform arithmetic functions using integers; recognize and use basic mathematical terms; respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Eighth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> respond to problems using addition, subtraction, multiplication, and division; copy and write numerical symbols; imitate pronunciation of numbers and mathematical terms; use non-verbal communication to express mathematical ideas. |

| | |
|---------------------|---|
| Pre-emergent | Eighth grade ELL students performing at the pre-emergent level: <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |
|---------------------|---|

Eighth Grade Statistics & Probability

Grade Standards, Supporting Skills, and Examples

Indicator 1: Use statistical models to gather, analyze, and display data to draw conclusions.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | <p>8.S.1.1. Students are able to find the mean, median, mode, and range of a data set from a stem-and-leaf plot and a line plot.</p> <p>Example: Find the mean, median, mode, and range of the given data.</p> <p>1) Average Speed:</p> <pre> 5 8 9 9 9 6 0 0 0 2 2 5 6 7 8 8 9 7 0 0 0 1 1 1 1 2 2 3 5 Key: 5 8 means 58 mph </pre> <p>2) Hours Spent on Homework</p> <pre> x x x x x x x x x x x x x x x x x x x x ----- 0 1 2 3 4 </pre> |

| (Application) | <p>8.S.1.2. Students are able to use a variety of visual representations to display data to make comparisons and predictions.</p> <ul style="list-style-type: none"> • Double bar graph • Double line graph • Scatterplot <p>Example: At 10 minutes, predict the amount of water that had been leaked.</p> <div data-bbox="535 535 1412 1071"> <table border="1"> <caption>Faucet Water Leak Data</caption> <thead> <tr> <th>min_Time</th> <th>ml_WaterLeaked</th> </tr> </thead> <tbody> <tr><td>1</td><td>10</td></tr> <tr><td>2</td><td>20</td></tr> <tr><td>3</td><td>20</td></tr> <tr><td>4</td><td>30</td></tr> <tr><td>5</td><td>30</td></tr> <tr><td>6</td><td>40</td></tr> <tr><td>7</td><td>35</td></tr> </tbody> </table> </div> | min_Time | ml_WaterLeaked | 1 | 10 | 2 | 20 | 3 | 20 | 4 | 30 | 5 | 30 | 6 | 40 | 7 | 35 |
|---------------|---|----------|----------------|---|----|---|----|---|----|---|----|---|----|---|----|---|----|
| min_Time | ml_WaterLeaked | | | | | | | | | | | | | | | | |
| 1 | 10 | | | | | | | | | | | | | | | | |
| 2 | 20 | | | | | | | | | | | | | | | | |
| 3 | 20 | | | | | | | | | | | | | | | | |
| 4 | 30 | | | | | | | | | | | | | | | | |
| 5 | 30 | | | | | | | | | | | | | | | | |
| 6 | 40 | | | | | | | | | | | | | | | | |
| 7 | 35 | | | | | | | | | | | | | | | | |

Indicator 2: Apply the concepts of probability to predict events/outcomes and solve problems.

| Bloom's Taxonomy Level | Standard, Supporting Skills, and Examples |
|------------------------|--|
| (Comprehension) | <p>8.S.2.1. Students are able to find the sample space and compute probability for two simultaneous independent events.</p> <p>Examples:</p> <ol style="list-style-type: none"> 1) What is the probability of getting a head and a three when flipping a coin and rolling a number cube? 2) Jamie has three different colored shirts and two different colored pairs of pants. Using a tree diagram, table or organized list, find how many different outfits she can make. <ul style="list-style-type: none"> • Express probability as a ratio, decimal, or percent. |

**Eighth Grade Statistics & Probability
Performance Descriptors**

| | |
|-------------------|--|
| Advanced | Eighth grade students performing at the advanced level: <ul style="list-style-type: none"> choose the measure of central tendency that best represents the data; make predictions using probability for two independent events. |
| Proficient | Eighth grade students performing at the proficient level: <ul style="list-style-type: none"> represent data in various forms and use results to make predictions and comparisons; find measures of central tendency; compute the probability for two independent events. |
| Basic | Eighth grade students performing at the basic level: <ul style="list-style-type: none"> represent data in various forms; find the mean and mode of a given set of data; find the probability of a simple event. |

**Eighth Grade Statistics & Probability
ELL Performance Descriptors**

| | |
|---------------------|---|
| Proficient | Eighth grade ELL students performing at the proficient level: <ul style="list-style-type: none"> gather, organize, and represent data in various forms to make comparisons; compute probability of two events occurring at the same time; read, write, and speak the basic language of statistics and probability. |
| Intermediate | Eighth grade ELL students performing at the intermediate level: <ul style="list-style-type: none"> represent data in various forms; determine measures of central tendency given a set of data; find the probability of simple events; read and answer questions about data in basic graphs; explain in mathematical terms the sequence of steps used in solving problems; give simple oral or written responses to directed questions on topics presented in class. |
| Basic | Eighth grade ELL students performing at the basic level: <ul style="list-style-type: none"> determine outcomes of events using coins, dice, spinners, etc.; recognize and use basic statistics and probability terms; respond to yes or no questions and to problems presented pictorially or numerically in class. |
| Emergent | Eighth grade ELL students performing at the emergent level: <ul style="list-style-type: none"> copy and write statistics and probability symbols and figures; imitate pronunciation of statistics and probability terms; use non-verbal communication to express mathematical ideas. |

| | |
|----------------------------|--|
| <p>Pre-emergent</p> | <p>Eighth grade ELL students performing at the pre-emergent level:</p> <ul style="list-style-type: none"> • observe and model appropriate cultural and learning behaviors from peers and adults; • listen to and observe comprehensible instruction and communicate understanding non-verbally. |
|----------------------------|--|

ALGEBRA STANDARDS 6-8

Indicator 1: Use procedures to transform algebraic expressions.

| Sixth Grade | Seventh Grade | Eighth Grade: |
|---|--|---|
| 6.A.1.1. (Application) Use order of operations, excluding nested parentheses and exponents, to simplify whole number expressions. | 7.A.1.1. (Application) Write and evaluate algebraic expressions using the set of whole numbers. | 8.A.1.1. (Application) Use properties to expand, combine, and simplify 1 st degree algebraic expressions with the set of integers. |
| 6.A.1.2. (Application) Write algebraic expressions involving addition or multiplication using whole numbers. | 7.A.1.2. (Knowledge) Identify associative, commutative, distributive, and identity properties involving algebraic expressions. | |

Indicator 2: Use a variety of algebraic concepts and methods to solve equations and inequalities.

| Sixth Grade | Seventh Grade | Eighth Grade |
|---|---|---|
| 6.A.2.1. (Application) Write and solve one-step 1 st degree equations, with one variable, involving inverse operations using the set of whole numbers. | 7.A.2.1. (Application) Write and solve one-step 1 st degree equations, with one variable, using the set of integers and inequalities, with one variable, using the set of whole numbers. | 8.A.2.1. (Application) Write and solve two-step 1 st degree equations, with one variable, and one-step inequalities, with one variable, using the set of integers. |

Indicator 3: Interpret and develop mathematical models.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|--|---|
| 6.A.3.1. (Knowledge) Identify and graph ordered pairs in Quadrant I on a coordinate plane. | 7.A.3.1. (Application) Identify and graph ordered pairs on a coordinate plane and inequalities on a number line. | 8.A.3.1. (Comprehension) Describe and determine linear relationships. |

| | | |
|---|---|--|
| 6.A.3.2. (Application) Solve one-step problems involving ratios and rates. | 7.A.3.2. (Application) Model and solve multi-step problems involving rates. | |
|---|---|--|

Indicator 4: Analyze and describe the properties and behaviors of relations, functions, and their inverses.

| Sixth Grade | Seventh Grade | Eighth Grade |
|---|---|---|
| 6.A.4.1. (Comprehension) Use concrete materials, graphs, and algebraic statements to represent problem situations. | 7.A.4.1. (Application) Recognize one-step patterns using tables, graphs, and models and create one-step algebraic expressions representing the pattern. | 8.A.4.1. (Synthesis) Create rules to explain the relationship between numbers when a change in the first variable affects the second variable. |
| | | 8.A.4.2. (Analysis) Describe and represent relations using tables, graphs, and rules. |

GEOMETRY STANDARDS

6-8

Indicator 1: Use deductive and inductive reasoning to recognize and apply properties of geometric figures.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|--|--|
| 6.G.1.1. (Comprehension) Identify and describe the characteristics of triangles and quadrilaterals. | 7.G.1.1. (Application) Identify, describe, and classify polygons having up to 10 sides. | 8.G.1.1. Describe and classify prisms, pyramids, cylinders, and cones. |
| 6.G.1.2. (Comprehension) Identify and describe angles. | 7.G.1.2. (Knowledge) Identify and describe elements of geometric figures. | 8.G.1.2. (Application) Given any two sides of an illustrated right triangle, use the Pythagorean Theorem to find the third side. |

Indicator 2: Use properties of geometric figures to solve problems from a variety of perspectives

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|--|--|
| 6.G.2.1. (Application) Use basic shapes to demonstrate geometric concepts. | 7.G.2.1. (Application) Demonstrate ways that shapes can be transformed. | 8.G.2.1. (Application) Write and solve proportions that express the relationships between corresponding parts of similar quadrilaterals and triangles. |

MEASUREMENT STANDARDS 6-8

Indicator 1: Apply measurement concepts in practical applications.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|---|---|
| 6.M.1.1. (Comprehension) Select, use, and convert appropriate unit of measurement for a situation. | 7.M.1.1. (Comprehension) Select, use, and convert appropriate unit of measurement for a situation including capacity and angle measurement. | 8.M.1.1. (Application) Apply proportional reasoning to solve measurement problems with rational number measurements. |
| 6.M.1.2. (Comprehension) Find the perimeter and area of squares and rectangles (whole number measurements). | 7.M.1.2. (Comprehension) Given the formulas, find the circumference, perimeter, and area of circles, parallelograms, triangles, and trapezoids (whole number measurement). | 8.M.1.2. (Comprehension) Find area, volume, and surface area with whole number measurements. |

NUMBER SENSE STANDARDS 6-8

Indicator 1: Use the structural characteristics of the set of real numbers and its various subsets. Apply the concept of value, magnitude, and relative magnitude of real numbers.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|---|---|
| 6.N.1.1. (Comprehension) Represent fractions in equivalent forms and convert between fractions, decimals, and percents using halves, fourths, tenths, and hundredths. | 7.N.1.1. (Comprehension) Represent numbers in a variety of forms by describing, ordering, and comparing integers, decimals, percents, and fractions. | 8.N.1.1. (Comprehension) Represent numbers in a variety of forms and identify the subsets of rational numbers. |
| 6.N.1.2. (Knowledge) Find factors and multiples of whole numbers. | 7.N.1.2. (Application) Find and use common multiples and factors of whole numbers. | |

Indicator 2: Apply operations within the set of real numbers.

| Sixth Grade | Seventh Grade | Eighth Grade |
|---|---|---|
| 6.N.2.1. (Comprehension) Add, subtract, multiply, and divide decimals. | 7.N.2.1. (Application) Add, subtract, multiply, and divide integers and positive fractions. | 8.N.2.1. (Application) Read, write, and compute within any subset of rational numbers. |

Indicator 3: Develop conjectures, predictions, or estimations to solve problems and verify or justify the results.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|--|--|
| 6.N.3.1. (Application) Use various strategies to solve one- and two-step problems involving positive decimals. | 7.N.3.1. (Application) Use various strategies to solve one- and two-step problems involving positive fractions and integers. | 8.N.3.1. (Application) Use various strategies to solve multi-step problems involving rational numbers. |

STATISTICS & PROBABILITY 6-8

Indicator 1: Use statistical models to gather, analyze, and display data to draw conclusions.

| Sixth Grade | Seventh Grade | Eighth Grade |
|---|--|---|
| 6.S.1.1. (Comprehension) Find the mean, mode, and range of an ordered set of positive data. | 7.S.1.1. (Comprehension) Find the mean, median, mode, and range of a set of data. | 8.S.1.1. (Comprehension) Find the mean, median, mode, and range of a data set from a stem-and-leaf plot and a line plot. |
| 6.S.1.2. (Application) Display data using bar and line graphs and draw conclusions from data displayed in a graph. | 7.S.1.2. (Application) Display data, using frequency tables, line plots, stem-and-leaf plots and make predictions from data displayed in a graph. | 8.S.1.2. (Application) Use a variety of visual representations to display data to make comparisons and predictions. |

Indicator 2: Apply the laws of probability to predict outcomes and solve problems.

| Sixth Grade | Seventh Grade | Eighth Grade |
|--|---|--|
| 6.S.2.1. (Knowledge) Find the probability of a simple event. | 7.S.2.1. (Comprehension) Given a sample space, find the probability of a specific outcome. | 8.S.2.1. (Comprehension) Find the sample space and compute probability for two simultaneous independent events. |